LIST OF CURRENT CLAIMS

1. (Previously Presented) A clamping apparatus for detachably fixing a movable member (M) to a reference member (R), comprising:

an annular plug portion (21) having an outer peripheral side and projecting from [[a]] said reference member (R) toward a leading end direction, and having a tapered outer peripheral surface (28, 54) which narrows toward the leading end direction arranged on the outer peripheral side of the plug portion (21); said movable member (M) provided with a tapered inner peripheral surface (12, 53) configured to engage the tapered outer peripheral surface (28, 54);

a transmission member (29) supported within a leading end of a cylindrical opening (21a) in the plug portion (21) so as to be axially movable within the opening over a predetermined range; a rod (31) located in the cylindrical opening (21a) so as to be axially movable therein, the ~~latter~~ rod located in a position closer to the reference member (R) than the transmission member (29)

whereby during a clamping operation, the rod (31) may be driven toward a base end direction of the reference member (R) by a driving device (D) provided in the reference member (R), said rod (31) having an output portion (36) arranged to move the movable member (M) toward the reference member (R); a transmission gap (G) formed between a pushing portion (31a) of a leading end of the rod (31) and a force receiving portion (29b) of the transmission member (29);

whereby during ~~a clamping operation, the rod (31) may be driven toward a base end direction of the reference number (R) by in the~~ an unclamping operation, the rod (31) may be driven toward the leading end direction by the driving device (D), such that the pushing portion (31a) of the rod (31) pushes the movable member (M) via the transmission member (29).

2. (Currently Amended) The clamping apparatus as set forth in claim 1, wherein

said rod (31) is arranged to push the movable member (M) via the transmission member (29) to form a fitting gap (alpha) between the tapered outer peripheral surface

(28, 54) and the tapered inner peripheral surface (12, 53) during ~~an~~ the unclamping operation.

3. (Previously Presented) The clamping apparatus as set forth in claim 1, including

an annular shuttle member (23), which is diametrically expandible and contractable, is provided with an inner peripheral surface fitted onto the plug portion (21) so as to axially reciprocate relative to the plug portion over a predetermined range, said outer peripheral surface of the shuttle member (23) serving as said tapered outer peripheral surface (28); and

an advancing device (24) arranged to move the shuttle member (23) in such a direction as to tighten the tapering engagement.

4. (Previously Presented) The clamping apparatus as set forth in claim 1, including

an annular shuttle member (23), which is diametrically expandible and contractable, and having an outer peripheral surface fitted into the movable member (M) so as to axially reciprocate within the movable member over a predetermined range, said inner peripheral surface of the shuttle member (23) serving as said tapered inner peripheral surface (53), and

an advancing device (24) arranged to move the shuttle member (23) in such a direction as to tighten the tapering engagement.

5. (Currently Amended) A clamping apparatus for fixing a surface (T) of a movable member (M) to be supported relative to a support surface (S) of a reference member (R) with alignment of the movable member (M) with the reference member (R), comprising

a socket bore (11) in the surface (T) of ~~a~~ the movable member (M) to be supported to define a positioning hole (12) and an engaging hole (13) in the recited order outwardly of the opening edge of the socket bore (11) ;

an annular plug portion (21) inserted into the socket bore (11) and projecting from the reference member (R) toward a leading end direction,

a shuttle member (23), which is diametrically expandible and contractable arranged between the plug portion (21) and the positioning hole (12); said shuttle member (23) supported by either the plug portion (21) or the positioning hole (12) so as to be axially reciprocable over reciprocate within a predetermined range; said shuttle member (23) making a tapering engagement with the positioning hole 12 or the plug portion (21); and a tapered surface (28, 53) of the shuttle member (23) formed to narrow toward the engaging hole (13); an advancing device (24) arranged to move the shuttle member (23) in a direction so as to tighten the tapering engagement;

a transmission member (29) supported within a leading end of a cylindrical hole (21a) in the plug portion (21) so as to be axially movable therein within a predetermined range; a rod (31) located within the cylindrical hole (21a) so as to be axially movable thereon; the rod located in a position closer to the reference member (R) than the transmission member (29);

an engaging member (34) movable between a radially outward engaging position (X) and a radially inward disengaging position (Y) arranged on the outer peripheral area of the rod (31),

a driving device (D) provided on the reference member (R) arranged to drive the rod (31) in a direction toward a base end direction of the reference member (R), to thereby enable an output portion (36) of the rod (31) to move the engaging member (34) to the engaging position (X) for engaging the engaging member (34) with the engaging hole (13) to move the movable member (M) toward the reference member (R) during a clamping operation; and a transmission gap (G) provided between a pushing portion (31a) of a leading end of the rod (31) and a pressure receiving portion (29b) of the transmission member (29) during ~~a~~ the clamping operation;

said driving device (D) arranged to drive the rod (31) toward the leading end direction, to thereby enable the engaging member (34) to move to the disengaging position (Y), such that the pushing portion (31a) of the rod (31) pushes a top wall (11a) of the socket bore (11) via the transmission member (29) during an unclamping operation.

6. (Previously Presented) The clamping apparatus as set forth in claim 5 wherein, said rod (31) is arranged to push the movable member (M) via the transmission member (29) to form a fitting gap (alpha) on the tapered surface (28,53) of the shuttle member (23) and a contact gap (beta) between the support surface (S) and the surface (T) to be supported.

7. (Currently Amended) The clamping apparatus as set forth in claim 1, including a resilient member (32) disposed between the rod (31) and the transmission member (29) and arranged to urge the transmission member (29) ~~and arranged~~ toward the leading end direction.

8. (Previously Presented) The clamping apparatus as set forth in claim 1, wherein the reference member (R) includes a supply port (41) for a cleaning fluid, and the transmission member (29) includes a blowout hole (42) for exiting the cleaning fluid; and said rod (31) is provided with a flow passage (44) through which the supply port (41) and the blowout hole (42) communicate with each other.

9. (Previously Presented) The clamping apparatus as set forth in claim 5, including a resilient member (32) disposed between the rod (31) and the transmission member (29) and arranged to urge the transmission member (29) toward the leading end direction.

10. (Previously Presented) The clamping apparatus as set forth in claim 5, wherein the reference member (R) includes a supply port (41) for a cleaning fluid, and the transmission member (29) includes a blowout hole (42) for exiting the cleaning fluid; and said rod (31) is provided with a flow passage (44) through which the supply port (41) and the blowout hole (42) communicate with each other.